

# MEMORANDUM

APR 2 1986

Design Standards for Highways  
in National Flood Insurance  
Program Mapped Floodplains

Associate Administrator for Engineering  
and Program Development

HNG-31

Regional Federal Highway Administrators Regions 1-10

The FHWA recognizes the National Flood Insurance Program (NFIP) standard that provides for up to a 1-foot increase in flood stages when (1) designating a floodway or (2) evaluating an encroachment where no floodway is designated. This standard is established as the Federal standard under Executive Order 11988, Floodplain Management, and is to be used in designing highways in NFIP mapped floodplains.

The FHWA floodplain regulations were issued in November 1979 (23 CFR 650, subpart A). These regulations established standards for the cost-effective design of highways in floodplains and for consistency with the NFIP. Guidance for complying with the NFIP part of the regulations was provided to the field by Mr R. D. Morgan's memorandum of June 25, 1982, and was titled "Procedures for Coordinating Highway Encroachments on Floodplains with the Federal Emergency Management Agency (FEMA)".

The coordination procedures established that NFIP standards are to be used in designing a highway in a NFIP mapped floodplain. Highways can normally be designed to be consistent with the NFIP standards because the standards provide for a 1-foot rise in the water surface elevation of the 100-year flood. This increase is included in most State and local floodplain regulations. Development, including highways, is permitted that does not cause backwater in excess of this increase.

The courts have generally ruled that the 1-foot rise of water onto affected property is not a taking and therefore does not require compensation. In addition, the property owner is eligible for damage protection under the NFIP. The property owner is further protected from loss in that the flood insurance rates will not be increased for a rise of 1-foot or less.

Some States have elected to adopt more restrictive standards than the NFIP standards. By more restrictive, it is meant that less than 1-foot of increase is permitted. In a few States, no increase is permitted at all. Permitting little or no increase has the effect of limiting floodplain development. Limiting development in this way is a State/local option under the FEMA regulations. The FEMA encourages restrictive standards because the liability of the NFIP is reduced.

However, there may be a cost to others. Application of these more restrictive standards can also result in larger, more costly highway structures and/or right-of-way costs than would have been required under the NFIP standards. These increased costs to meet standards more restrictive than NFIP standards are the responsibility of the State.

Therefore, Federal-aid highway funds should not be used either (1) for payments to property owners or (2) for more costly highway facilities if, in either case, the costs are incurred to meet State standards that require less than a 1-foot rise in water surface elevation for the 100-year flood. Exceptions for designs that limit the water surface to less than a foot may be granted on a case by case basis where the cost effectiveness of such designs can be demonstrated by an economic analysis.

If it is cost effective to exceed the 1-foot increase, FHWA will participate in right-of-way costs for insurable buildings in order to limit flood damage increased for which the State or NFIP might be responsible. Attached are options which should be considered if the 1-foot increase is to be exceeded.

/s/

Rex C. Leathers

Attachment

PARTICIPATION OPTIONS  
FOR  
LIMITING FLOOD DAMAGE

If a Federal-aid highway project will cause a 100-year flood elevation which is more than 1-foot higher than the base flood elevation shown on a NFIP map at either (1) a National Flood Insurance Program (NFIP) insurable building or (2) an unimproved property with a substantially changed highest or best use, participation may be provided with Federal-aid highway funds by the following option which best fits the State's property management plan:

1. Purchase property
  - a. Relocate owners/tenants
  - b. Buildings should be:
    - (1) Destroyed,
    - (2) Relocated out of the floodplain
    - (3) Resold with commitment of buyer to:
      - (a) Relocate out of the floodplain, or
      - (b) Elevate the building above the new 100-year flood level or accomplish other acceptable floodproofing techniques
2. Reimburse Owner for Floodproofing Buildings
  - a. Buildings should be elevated to or above the new 100-year flood level or other acceptable floodproofing techniques applied
  - b. Owner retains title
  - c. Owner arranges for floodproofing
  - d. Owner to sign instrument to hold State harmless from future flood damage
  - e. Reimbursement for floodproofing is limited to the cost to Purchase property and relocate residents.
3. Purchase Permanent Easement
  - a. For unimproved property
  - b. Reimbursement is based on before and after appraisal